

FACT SHEET

Pests & Diseases

Insects, diseases and environmental stress can all threaten the health of a tree. A careful and thorough examination of a tree at the first signs of irregularity can greatly advance the diagnoses process to finding the right treatment.

Non-Infectious Diseases

The majority of problems that plague urban trees fall into the non-infectious category. The first step in intervention is to look to see if your tree is under any environmental stress, or has a non-infectious condition.

The basic elements that influence plant health are sufficient water, light and a proper balance of nutrients. A deficit of any or all three of these factors weakens the tree, making it more susceptible to insects and diseases. Winter freezing damage like frost crack, sunscald or bud death is a seasonal environmental stress, that can weaken the health of your tree. Air pollution and chemical damage are other environmental hazards to be aware of.

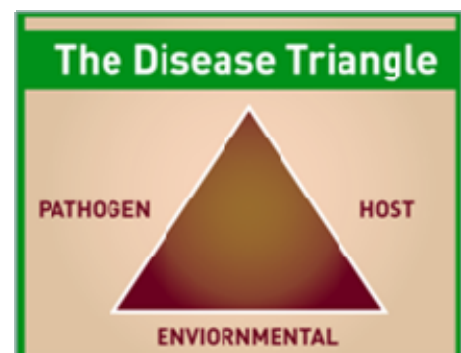
Trees can deal with environmental stress, such as shading or competition for water and nutrients, by adjusting their growth and development patterns to match the availability of these resources. Although trees are adapted to living in stressful conditions in nature, the stresses they experience in urban landscape sometimes turn out to be more than they can handle, making them more susceptible to insects and diseases.

A common environmental stress found in Indiana is for oak trees. Chlorosis, the yellowing of the leaves, results from the tree not getting enough iron. Although iron may already be prevalent in the soil, it can be confined there due to a high pH condition. Spreading sulfur under the tree will help acidify the soil and help the iron become available to the tree. Seek advice from a certified arborist if simple measures do not work.

Infectious Diseases

Infectious disease concerns in Indiana are fungi, viruses, and bacteria. Common fungal problems are powdery mildew, sooty mold, verticillium, wilt, canker, certain leaf spots, heart rot, root rot, scab must, anthracnose, and blister. Viruses and bacteria are responsible for some leaf spots and fire blight.

For a disease to develop, three conditions must be present. First, there must be the presence of a pathogen, also known as the disease-causing agent. Secondly, there must be plant susceptibility to that particular



pathogen. Finally, the plant and pathogen must both be located in an environment suitable for the disease to develop. These three factors form what is known as the “Disease Triangle” which is a concept about plant diseases that should be understood by homeowners.

Most plant diseases cause a loss of yield or result in the loss of aesthetic appeal of the tree. Some diseases, though, weaken the structure of the tree so severely that a hazardous condition is created. Property damage or human injury can be the result of falling limbs, or even the collapse of the entire tree. Fungi are almost always responsible in this situation.

Pests

Insects cause damage to trees primarily by their feeding method. There are three common types of feeders: chewing insects, sucking insects, and boring insects.

Chewing insects include beetles, webworms and bagworms. These insects feed off of softer plant tissue, such as leaves, flowers, buds and twigs. The indication of damage by these insects is seen in uneven or broken margins on the leaves or by skeletonization of leaves.

Sucking insects, meanwhile, insert their beak into the tissues of leaves, twigs, branches, flowers or fruit and feed on the plant’s juices. Aphids, mealy bugs, thrips, and leafhoppers are the most common insects in this group. The damage caused by these pests is often characterized by discoloration, drooping, wilting, or spots on leaves.

Boring insects can often present the most serious threat to a tree’s livelihood. They spend their time as larvae feeding beneath the bark of trees. Some borers, known as bark beetles, mate at or near the bark surface laying their eggs in tunnels beneath the bark.



The Emerald Ash Borer is currently the most notorious of boring insects and is quickly invading the state. The exotic beetle was discovered in southeastern Michigan during the summer of 2002. It is suspected the beetle arrived in the United States on wood packing material carried in cargo ships, which originated in its native Asia. The Emerald Ash Borer was found in Indiana in 2004.

Since its discovery, Emerald Ash Borer has wreaked havoc on the population of ash trees in the Midwest, killing more than 30 million ash trees in Michigan alone. To combat the problem, regulatory agencies have had to use quarantines to stop, or at least slow, the spread of the beetle. The resulting cost has been millions of dollars to the forest products industry as well as to homeowners and nursery operators. Efforts are underway to find a cure to the damage done by this pest.